

What is claimed is:

1 1. A laser array imaging lens comprising, in order from a light-source side, without any
2 intervening lens component:

3 a first lens component; and

4 a second lens component, one lens surface of which is aspheric;

5 wherein

6 at least one lens surface of the laser array imaging lens is formed with an anamorphic,
7 aspheric surface; and

8 at least one lens surface of the laser array imaging lens is formed having a diffractive
9 optical element with a phase function either superimposed thereon or is provided as a separate
10 surface.

1 2. The laser array imaging lens according to claim 1, wherein a stop is positioned on the image-
2 plane side of the first lens component at a specified distance.

1 3. In combination:

2 a laser array light source; and

3 a laser array imaging lens which receives light from the laser array light source, the laser
4 array imaging lens comprising, in order from the light-source side, without any intervening lens
5 component:

6 a first lens component; and

7 a second lens component, one lens surface of which is aspheric;

8 wherein

9 at least one lens surface of the laser array imaging lens is formed with an anamorphic,
10 aspheric surface; and

11 the following condition is satisfied

12
$$0.5 < L / (D_{21} \cdot (1 - 1/M)) < 2.0$$

13 where

14 L is the distance from the laser array light source to the light-source-side surface of the
15 first lens component of the laser array imaging lens;

16 D_{21} is the distance from the image-plane-side surface of the first lens component to the
17 position where the central rays of the beams from the laser elements intersect the
18 optical axis; and

19 M is the image magnification.

1 4. The combination according to claim 3, wherein a stop is positioned on the image-plane side of
2 the first lens component at a specified distance.

1 5. An image-forming device that includes the laser array imaging lens according to claim 1, and
2 further comprises:

3 a laser array light source made by arraying multiple light emitting elements in one or
4 more rows;

5 means for independently modulating the individual light emitting elements of the laser
6 array light source, based on a prescribed signal;

7 means for relatively moving a surface to be scanned, that is positioned substantially at an
8 image surface of the laser array imaging lens, in a sub-scanning direction that is roughly
9 perpendicular to the direction of the image dots that form one or more rows at the image surface.

1 6. An image-forming device that includes the laser array imaging lens according to claim 2, and
2 further comprises:

3 a laser array light source made by arraying multiple light emitting elements in one or
4 more rows;

5 means for independently modulating the individual light emitting elements of the laser
6 array light source, based on a prescribed signal;

7 means for relatively moving a surface to be scanned and that is positioned substantially at
8 the image surface of the laser array imaging lens, in a sub-scanning direction that is roughly

9 perpendicular to the direction of the imaged dots that form one or more rows at the image
10 surface.

1 7. An image-forming device that includes the combination according to claim 3, and further
2 comprises:

3 means for independently modulating the individual light emitting elements of the laser
4 array light source, based on a prescribed signal;

5 means for relatively moving a surface to be scanned and that is positioned substantially at
6 the image surface of the laser array imaging lens, in a sub-scanning direction that is roughly
7 perpendicular to the direction of imaged light spots that form one or more rows at the image
8 surface.

1 8. An image-forming device that includes the combination according to claim 4, and further
2 comprises:

3 means for independently modulating the individual light emitting elements of the laser
4 array light source, based on a prescribed signal;

5 means for relatively moving a surface to be scanned and that is positioned substantially at
6 the image surface of the laser array imaging lens, in a sub-scanning direction that is roughly
7 perpendicular to the direction of the imaged dots that form one or more rows at the image
8 surface.

1 9. The laser array imaging lens according to claim 1, wherein the first lens component consists
2 of a single lens element.

1 10. The laser array imaging lens according to claim 2, wherein the first lens component consists
2 of a single lens element.

1 11. The combination according to claim 3, wherein the first lens component consists of a single

2 lens element.

1 12. The combination according to claim 4, wherein the first lens component consists of a single
2 lens element.

1 13. The image-forming device according to claim 5, wherein the first lens component consists of
2 a single lens element.

1 14. The image-forming device according to claim 6, wherein the first lens component consists of
2 a single lens element.

1 15. The image-forming device according to claim 7, wherein the first lens component consists of
2 a single lens element.

1 16. The image-forming device according to claim 8, wherein the first lens component consists of
2 a single lens element.

1 17. The laser array imaging lens according to claim 2, wherein the stop is positioned so that the
2 laser array imaging lens is substantially telecentric on the light-source side.

1 18. The combination according to claim 4, wherein the stop is positioned so that the laser array
2 imaging lens is substantially telecentric on the light-source side.

1 19. The image-forming device according to claim 6, wherein the stop is positioned so that the
2 laser array imaging lens is substantially telecentric on the light-source side.

1 20. The image-forming device according to claim 8, wherein the stop is positioned so that the
2 laser array imaging lens is substantially telecentric on the light-source side.